

WE CLAIM:

1. A method of enabling policy-based traffic forwarding in a data network, the method comprising steps of:
asserting a route tag in respect of a link state advertisement (LSA) message; and
controlling propagation of the LSA through the data network using the asserted internal route tag.
2. A method as claimed in claim 1, wherein the data network is an Open Shortest Path first (OSPF) network.
3. A method as claimed in claim 1, wherein the route tag comprises one of:
an internal route tag associated with an address located within an autonomous system of the data network; and
an external route tag associated with an address located outside the autonomous system.
4. A method as claimed in claim 1, wherein the step of asserting a route tag comprises steps of:
setting a route tag value respecting the LSA; and
inserting the route tag value into a predetermined field of the LSA.
5. A method as claimed in claim 4, wherein the route tag value is set by a policy having a match criteria corresponding to a predetermined attribute of the LSA.

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6. A method as claimed in claim 5, wherein the predetermined attribute comprises any one or more of: a source address; a source area; a destination address; and a destination area.
7. A method as claimed in claim 4, wherein the LSA is a Type-5 LSA, and the step of inserting the route tag comprises a step of inserting the route tag value into an external route tag field of the LSA.
8. A method as claimed in claim 4, wherein the step of inserting the route tag comprises a step of inserting the route tag value into an internal route tag field of a modified Type-3 LSA.
9. A method as claimed in claim 1, wherein the step of controlling propagation of the LSA comprises a step of implementing a forwarding policy having a match criteria corresponding to the asserted route tag.
10. A method as claimed in claim 9, wherein the forwarding policy corresponds to one of:
 - a pass decision, in which the LSA is forwarded to a downstream link; and
 - a discard decision, in which the LSA is discarded without forwarding.
11. A method as claimed in claim 10, wherein implementation of the forwarding policy further comprises a step of updating a forwarding table using information contained in the LSA as either one of: an inclusion route; and an exclusion route.

12. A router adapted for enabling policy-based traffic forwarding in a data network, the router comprising means for controlling propagation of a link state advertisement (LSA) message through the data network using a route tag asserted in respect of the LSA.
13. A router as claimed in claim 12, wherein the data network comprises an Open Shortest Path first (OSPF) network.
14. A router as claimed in claim 13, wherein the router comprises any one of an autonomous system border router, and an area border router.
15. A router as claimed in claim 12, wherein the route tag comprises one of:
- an internal route tag associated with an address located within an autonomous system of the data network; and
 - an external route tag associated with an address located outside the autonomous system.
16. A router as claimed in claim 12, wherein the means for controlling propagation of the LSA comprises means for implementing a forwarding policy having a match criteria corresponding to at least the asserted route tag.
17. A router as claimed in claim 16, wherein the forwarding policy corresponds to one of:
- a pass decision, in which the LSA is forwarded to a downstream link; and

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a discard decision, in which the LSA is discarded without forwarding.

18. A router as claimed in claim 17, wherein the means for implementing the forwarding policy further comprises means for updating a forwarding table using information contained in the LSA as either one of: an inclusion route and an exclusion route.
19. A router as claimed in claim 12, further comprising means for asserting the route tag in respect of the LSA.
20. A router as claimed in claim 19, wherein the means for asserting the route tag comprises:
means for setting a route tag value respecting the LSA; and
means for inserting the route tag into a predetermined field of the LSA.
21. A router as claimed in claim 20, wherein the means for setting the route tag value comprises a policy having a match criteria corresponding to one or more predetermined attributes of the LSA.
22. A router as claimed in claim 21, wherein the one or more predetermined attributes comprise any one or more of: a source address; a source area; a destination address; and a destination area.
23. A router as claimed in claim 20, wherein the router is an ASBR, and the means for inserting the route tag

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is adapted to insert the route tag value into an external route tag field of a Type-5 LSA.

24. A router as claimed in claim 20, wherein the router is an ABR, and the means for inserting the route tag is adapted to insert the route tag value into an internal route tag field of a modified Type-3 LSA.
25. A software program adapted to control a router to enable policy-based traffic forwarding in a data network, the software program comprising software adapted to control propagation of a link state advertisement (LSA) message through the data network using a route tag asserted in respect of the LSA.
26. A software program as claimed in claim 25, wherein the software adapted to control propagation of the LSA comprises software adapted to implement a forwarding policy having a match criteria corresponding to at least the asserted route tag.
27. A software program as claimed in claim 26, wherein the software adapted to implement the forwarding policy further comprises software adapted to control the router to update a forwarding table using information contained in the LSA as either one of: an inclusion route and an exclusion route.
28. A software program as claimed in claim 25, further comprising software adapted to control the router to assert the route tag in respect of the LSA.

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29. A software program as claimed in claim 28, wherein the software adapted to control the router to assert the route tag comprises:
- software adapted to control the router to set a route tag value respecting the LSA; and
- software adapted to control the router to insert the route tag into a predetermined field of the LSA.
30. A software program as claimed in claim 29, wherein the router is an ASBR, and the software adapted to control the router to insert the route tag is adapted to control the router to insert the route tag value into an external route tag field of a Type-5 LSA.
31. A software program as claimed in claim 29, wherein the router is an ABR, and the software adapted to control the router to insert the route tag is adapted to control the router to insert the route tag value into an internal route tag field of a modified Type-3 LSA.

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